NAME: DATE:

 

OWL PELLET EXPERIMENT

**Abstract:**

Barn Owls must kill other animals to survive. Their diet consists of insects, earthworms, small birds, mice, as well as other small rodents. So what is an Owl Pellet? They are the regurgitated remains of an owl's meal, including all the bones of the animals they have eaten. Owls usually swallow their food whole, digest the edible parts, and then expel the indigestible parts through their mouth as a pellet. These pellets are not only produced and regurgitated by owls, but also by hawks, eagles, and other birds that swallow their meals whole or in large pieces.

With owls swallowing their prey whole, each pellet contains virtually complete skeletons of the animals the owl ate the day before the pellet was formed. Owl pellets themselves can be considered ecosystems, providing food and shelter for communities which may include moths, beetles, and fungi. Moth larvae are frequently abundant in pellets, feeding on fur and feathers. By examining the bones of the animals eaten, the types of animals eaten, and the number of each species, the varied diet of an owl and the type of ecosystem in which it came from can be determined.

**REMEMBER…. SAFETY FIRST!!!**

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Along with following the Flinn Safety Guidelines, here are some key points of safety specific to this laboratory experiment…

**While performing the Owl Pellet Laboratory Experiment:**

* Protective goggles must be worn at all times.
* Protective gloves must be worn at all times.
* All remains of owl pellets must be discarded in the appropriate marked disposal containers located at each of the laboratory benches.
* Cover tray pans containing remains of owl pellet findings with aluminum foil at the end of each class period.
* Gloves can be discarded in the marked disposal containers located at each of the laboratory benches.

**Purpose:** Investigation of the various organisms that this consumer has eaten. Receive a better indication of an appropriate food chain model in which this Barn Owl belongs to.

**Materials:**

* Owl Pellets
* Disposable gloves and Protective safety goggles
* Magnifying glass
* Dissecting needles, toothpicks, tweezers
* Dissecting tray
* Bone Chart
* Centimeter rulers

**Procedure:**

1. Once students have received their owl pellets and have placed them into their dissecting trays, measure the length and width of the pellets. Record these values on your Data Sheets. Observe any fur or feathers on the outside of the pellet before dissection.
2. Next, gently pull apart the pellet, being careful not to break any of the bones inside it. Use the dissecting tools to separate the bones from the fur or feathers.
3. As you are dissecting the pellet, group similar bones together in the dissecting tray.
4. Use the bone identification chart to organize the different bones according to their types. For example, have a pile of skull bones, a pile of vertebrate bones etc.
5. Identify the different animals in your owl pellet by recording your data on the data sheet by including the number of bones from a particular species.
6. Add your results to the class data on the board.
7. Complete Discussion and Conclusion questions.

DATA SHEET

1. Measurements of owl pellet (cm)

Legnth:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Width:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What did you notice on the outside of the owl pellet before you began to dissect? Did you observe any fur or feathers?
2. Based on your bone count, complete the data table below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **BONE** | **RODENT** | **SHREW** | **MOLE** | **SMALL BIRD** |
| Skull |  |  |  |  |
| Jaw |  |  |  |  |
| Scapula |  |  |  |  |
| Hind Limb |  |  |  |  |
| Fore Limb |  |  |  |  |
| Pelvic Bone |  |  |  |  |
| Rib |  |  |  |  |
| Vertebrae |  |  |  |  |
| **TOTAL BONES FOUND** |  |  |  |  |

DISCUSSION QUESTIONS

1. How may the size of the owl pellet explain the relative size of the owls diet?
2. Based on the pellets, what do we know about the digestive system of an owl?
3. Owl pellets can not only give us information about the diet of an owl, but they can also explain the ecosystems for other animals. What types of animals are found in the owl pellet ecosystem?
4. If all the owls whose pellets the class studied lived in the same ecosystem, what type of a hypothesis could be made about the population density of the most common eaten organism?

CONCLUSION

1. From your data sheet, graph the total bones for each organism that was found in your pellet. What organisms are represented the most often in your graphical findings? What are common characteristics about these organisms within ecosystems?
2. Compare your data to the data that the class collected. Are there any similarities or differences?
3. Create a sample Food chain with the following organisms. Plant, Mouse, Barn Owl, Insect. Be sure to label all trophic levels. Use back of sheet if more space is needed.